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TITLE

TREE MORTALITY ON THE CAMPGROUNDS OF THE PAYETTE LAKES PENINSULA

by
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Forest Insect Laboratory
Coeur d'Alene, Idaho
October 9, 1941

SUBJECT—

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FOREST INSECT INVEST.,
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File No. Mr. Keen
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October 9, 1941

To: Dr. F. C. Craighead, in Charge, Forest Insect Investigations

From: James C. Evenden, Box 630, Coeur d'Alene, Idaho

Subject: Report "Tree Mortality on the Campgrounds of the Payette Lakes Peninsula"

Enclosed are two copies of a report "Tree Mortality on the Campgrounds of the Payette Lakes Peninsula", which I believe is fairly self-explanatory. The extra copy is for transmittal to the Forester if you so desire.

These campground problems are difficult ones to solve, for in most instances the damage has occurred by the time the serious injury is recognized by the agency responsible.

I would be pleased to have your comments and suggestions in connection with this problem.

Copies of this memo and the report are being sent to Miller and Keen. Copies of the report are being sent to the State Forester of Idaho, Dean D. S. Jeffers of the School of Forestry, University of Idaho, the Supervisor of the Idaho National Forest, Mr. Shellworth of the Boise-Payette Lumber Company, and the Regional Forester at Ogden.

Very truly yours,

James C. Evenden

Senior Entomologist

Enclosures

TREE MORTALITY ON THE CAMPGROUNDS OF THE PAYETTE LAKES PENINSULA

by
James C. Evenden
Senior Entomologist

The occurrence of dead and dying ponderosa pine trees in the vicinity of McCall, Idaho, with a few beetle-infested ponderosa pine trees on the site of the University of Idaho's Summer Forestry Camp on the Payette Lakes Peninsula was reported to the Forest Insect Laboratory by Forest Supervisor Farrell on June 18, 1941. A preliminary examination of the situation within this area was made by Mr. Terrell of the Coeur d'Alene Laboratory during the later part of June. Later in July this situation, with special consideration to the infestation on the summer camp site, was again reported by State Forester Girard.

Although Mr. Terrell's extensive examination did not reveal any alarming forest insect infestations, there were a few situations of sufficient seriousness to warrant further consideration to obtain more detailed data. To obtain this information an extensive survey has been made of specific areas on the Idaho, Payette, and Weiser National Forests and adjacent private lands. A report of this survey will be made at a later date.

On September 22 Mr. Terrell and the writer made an intensive examination of the reported infestation at the Summer Forestry Camp, as well as the timber stands of the Payette Lakes Peninsula. In

addition to this examination, several miles of sample strip were run by the survey crew on the peninsula and adjacent areas to obtain data as to the present status of the western pine beetle infestation in ponderosa pine.

The timber stands of this area are for the most part old, over-mature ponderosa pine and Douglas fir, with some larch and white fir. The proportion of these tree species varies for different parts of the unit. Although there has been no recent logging on the peninsula, the commercial timber has been or is being removed from most of the adjacent stands, leaving a thin stocking of rather low-vigor trees. Throughout this area there is, as in all mature ponderosa pine stands of this character, a light endemic infestation of the western pine beetle (Dendroctonus brevicomis Lec.). Although there are a number of 1940-attacked trees (red tops) and a few attacks of the present season (sorrel tops) scattered throughout the Payette Lakes and New Meadows Valley areas, the infestation is unusually light and can not be considered as at all serious.

A more serious situation exists at the Forestry Camp, as well as on adjacent public and private campgrounds. In this area there are four large ponderosa pine trees that were attacked and killed by the western pine beetle during the past season. There are also many large trees as well as a few smaller ones that have been heavily attacked at the base by the red turpentine beetle (Dendroctonus valens) during the summer. The damage by this insect is exceptionally heavy around the buildings of the Forestry Camp. The turpentine beetle is not ordinarily considered as an aggressive tree killer, as its attacks are usually

confined to injured or decadent trees and freshly cut stumps. However, when large populations occur, more vigorous trees may be attacked, which lowers their resistance and makes them susceptible to attack of other more aggressive species of bark beetles.

The explanation for the existence of this condition will be more clearly understood if the situation is regarded primarily as a campground problem rather than one of insect control. In campgrounds and other heavily used utility areas, trees are forced to live under abnormal environmental conditions. The forest floor is raked bare of all debris, the soil is packed by tramping, which prevents proper absorption of water, roots are bared and injured, and the bases of trees are often injured by axes or in other mechanical ways. This problem is not peculiar to this area, as it exists in all recreational areas subjected to heavy use. Although bark beetles often attack trees growing under such unfavorable conditions, in most instances they are secondary to the primary injury, which a number of years ago was dubbed "tourist kill".

Although the life of most species of forest trees can not be preserved indefinitely, the life span of those individuals growing under such unfavorable conditions as described for these areas is materially shortened. Insect control may reduce the insect population and postpone for a few years this inevitable death. Insect control may also prevent the insects that are breeding in such weakened material from building to such populations that more resistant trees are attacked and killed. For these reasons the disposal of all trees within such utility areas that harbor attacks of destructive bark beetles is recommended.

The severity of the red turpentine beetle infestation warrants serious consideration. As these beetles are readily attracted by freshly cut stumps, log decks, new lumber piles, etc., it is entirely possible that the construction activity at this camp site resulted in a concentration and subsequent attack of weakened and injured trees. With the cessation of construction at this site the outbreak may subside, yet the population of these beetles that will emerge next spring will be sufficient to cause further injury to the same or additional trees. It would be advisable to destroy these broods by injecting a small quantity of carbon disulphide into each individual gallery. This is done by making a small opening beneath the pitch mass with a sharp knife, and squirting a small quantity of the liquid into the brood chamber from an oil can. A tablespoon of this substance, if properly applied, is sufficient for each gallery. After treating, the gallery should be sealed with the pitch as much as possible.

It is difficult to offer practical suggestions for lessening the severity of the problem which exists in these utility areas. First of all, it must be recognized that as the large ponderosa pine trees with which we are concerned are old and consequently overmature, they can not be preserved indefinitely. As the mortality associated with old age has been augmented by the unnatural environment in which these trees are now growing, one may be sure that subsequent losses will occur. No prediction can be made as to when such trees will die, for although some of these decadent trees will undoubtedly live for years, additional losses may occur at any time. The fact that four were killed this season is an indication of what can occur. It is

unfortunate that the steps to be taken to obtain the maximum life of trees growing under such conditions are not overly practicable to apply:

1. Action should be taken to restore the area in which the trees are growing to a more natural condition. Soil should be broken, duff replaced, and cars and tourists kept away from the base by retaining rocks. Campgrounds should be carefully planned, with designated spots for camping, etc., if "tourist kill" is to be prevented.
2. Trees must not be injured by chopping, hand-axe throwing, or other mechanical means. An axe mark makes an excellent spot for subsequent attack of the turpentine beetle.
3. The ultimate future of these stands should be foreseen and tree replacements provided at this time. These replacements must be carefully located and allowed to grow in as near a natural condition as possible.

Although there is no serious bark beetle infestation associated with the timber stands on the Payette Lakes Peninsula, I am sorry that I am obliged to draw the rather gloomy picture that I have in connection with the heavily used campground areas.

I shall be very glad to answer questions concerning any point in connection with this situation that I have not made clear, or we shall be glad to offer further assistance if desired.

Figure 1

Figure 2

Figure 3

Figure 4

Figures 1 and 2.--Ponderosa pine stand immediately back of forestry camp that is growing under normal environmental conditions. Note ground cover and healthy condition of reproduction.

Figures 3 and 4.--Ponderosa pine and Douglas fir growing under abnormal conditions created by unrestrained use of area for campground purposes. Note bare ground, exposed and injured lateral roots, and complete absence of all ground vegetation. Stumps in background (figure 4) are of trees killed some few years ago.

Figure 5

Figure 6

Figure 7

Figure 8

Figures 5, 6, and 7.--Mature ponderosa pine and Douglas fir trees growing under the abnormal conditions of heavily used utility areas. Note the bare, packed forest floor and complete lack of ground vegetation. Pictures are of forest camp and public campground.

Figure 8.--Mature ponderosa pine tree by side of forest camp mess, showing heavy attack of red turpentine beetle (Dendroctonus valens).

Figure 9

Figure 10

Figure 11

Figure 12

Figure 9.--Normal growing conditions. Photograph taken back of forest camp.

Figure 10.--Campground conditions. Photograph taken in front of forest camp.

Figure 11.--Campground tree injured by fires and axes.

Figure 12.--Roots of Douglas fir tree showing injury.